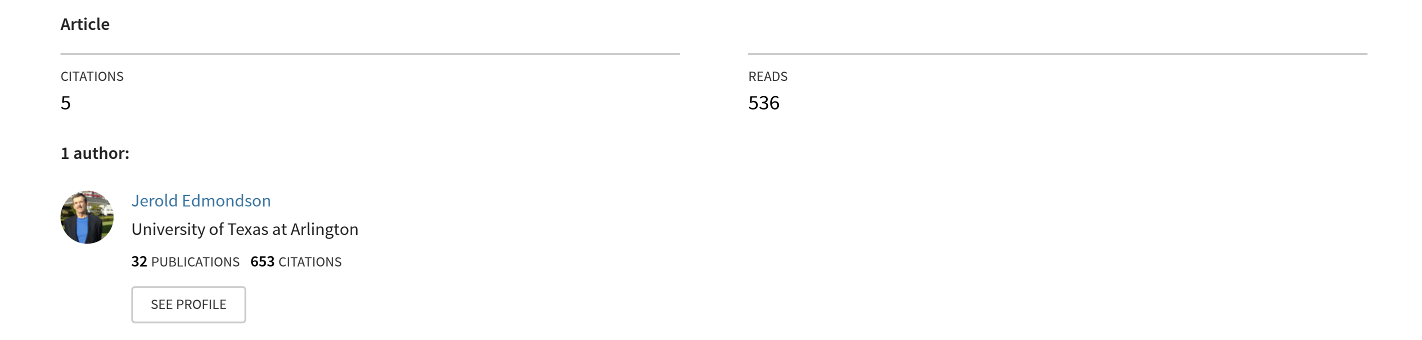


The power of language over the past: Tai settlement and Tai linguistics in southern China and northern Vietnam Jerold A. Edmondson

Jerold Edmondson
University of Texas at Arlington

The power of language over the past: Tai settlement and Tai linguistics in southern China and northern Vietnam

Jerold A. Edmondson
Department of Linguistics and TESOL
The University of Texas at Arlington
Arlington, TX 76019-0559 USA
J.Edmondson@sbcglobal.net

Darwin's Conjecture
If we possessed a perfect pedigree of mankind,
a genealogical arrangement of the races of man
would afford the best classification of the various
languages now spoken throughout the world….

Charles Darwin *On the Origin of Species*

1.0 Introduction.

This paper will range over three historical aspects of The Power of Language topic and over a time frame on the order of forty thousand years. The first theme to be considered will concern the **power of language (language in the genes)** that can tell us the story **of the very remote past of Tai migration and settlement** from a place in India. From there the Tai precursors then moved into the border areas of SE Asia/Yunnan Province, China. The groups that would become the Tai dipped south into Laos and Vietnam before looping back again into northern Vietnam and the territory of contemporary China where the odyssey ended 8-10,000 years ago. They were then left stretched along the S and SE coast of China from Guangxi, Guangdong, Fujian, Zhejiang Province up to the mouth of the Yangzi River near Shanghai. That language, that genetic language, only recently deciphered, is one that inheres still in today's speakers as a component in the patterns of their Y-chromosome DNA and must be studied by population geneticists, paleo-anthropologists, and paleo-historians. Work by a team of Chinese and international scholars—Chu et al (1998), Su et al (1999), Yao et al (2002), Shi et al (2005), and Sagart et al (2005)—has uncovered a remarkable human journey of surprising detail that suggests the people who would become the Tai stock lie in a direct line of descent (as indicted in the M168 mutation) from an E. African exodus 80,000 years before the present (BP).

The second theme will be to exemplify the **power of language (language in society), in this case the power of the linguistic parent of the Tai (and ultimately the Thai), the Bai-Yue (百越 or 百钺), to connect us to a pre-historical world** with etyma that still can be recognized by Tai speakers today. This language can be studied by historical linguists and historians. We will examine in particular the "越人歌 (Song of the Yue boatman)" written down in

Chinese characters 528 BC but recording Bai-Yue language and see glimpses of some cultural and linguistic features of that time. We will survey the Tai groups found today in Guangxi and northern Vietnam, use linguistic data to suggest how subsequent movement and migrations transpired. Of special interest will be movement as a consequence of the tumultuous years of the Tai revolt (1053 AD) of Nong Zhigao (侬智高 or Nùng Trị Cao), with many Tai retracing back to the south the S-to-N pathway of the remote past (see above). From my field work data I believe that one group, the Nùng, though often grouped with the Tày ethnicities of northern Vietnam, were once separate groups who lived north of the Sino-Vietnam frontier and were part of the Southern Zhuang of Guangxi Province. But the Nùng, wishing to escape further Chinese suppression or the draft, moved south into Vietnam. Fan (1989b) mentions only the movement of the Nùng and not the Tày. Another part of the Bai Yue, even earlier and, perhaps for the same reason, had moved to the south and west into Yunnan Province and then southward down the great rivers into Laos (Lao), Thailand (Thai), and Myanmar (Shan), where they still live today quite distant from their original settlement areas near the China/Vietnam border and neither recognizes the relatedness of the other group.

Finally, the third theme of this presentation will be to look briefly at the **changing power relationship among the Tai languages of this area; some have remained where they first settled and thrived; some migrated out to the south and thrived; and some remained and are today severely threatened with absorption by yet more powerful languages of the area.** The very important languages, e.g. Laha Noong Lay, Tai Sa Pa, Qabiao, etc. in Vietnam near the China border, are nearing extinction. This theme is the purview of the sociolinguist and those interested in language revitalization.

The commonality of these themes is that there is power in language because it can shape our feelings of identity. It allows us to decide who we were and are and who is related to us and how close. Language also has the power to tell us about our past, what were the cultural features of distant ancestors; how the culture and language of our forbearers have developed and spread; and how that culture and language has thrived or atrophied, as they have come down to us today. With the new tools of population genetics we are now able to test what I will call Darwin's Conjecture.

But in the distant past when vast areas of East and Southeast Asia were unpopulated (due presumably to the extinction of *Homo erectus* in the Glacial Maximum), then there was a much greater chance that biogenesis and ethno-/linguo-genesis were tightly intertwined and that genes and culture/language were aligned. Hunter-gatherer societies were on the move with relatively small numbers and, because of the low population density, did not often encounter other language groups. Nowadays, there is great genetic diversity among speakers of the same language. Language shift with children speaking a different primary language from that of their parents has grown stronger with each population expansion.

Today's world is a challenge for the Darwinian view of human migration and language.

But, first things first; we begin this account of the genetic, ethnic, and linguistic odyssey some tens of thousands of years ago.

2.0 The remote past.

We live in a time when knowledge about the remote past (> 40,000 years ago) is exploding. Because of the deciphering of the human genome we are now in a position to know about our own **biogenesis**, where we came from and what route our ancestors took on their migrations. As Spenser Wells in his *The journey of man: a genetic odyssey* (2002) has described it, all humanity outside Africa has come from a single emanation and resulting population expansion that left from the Horn of Africa about 80,000 years BP (before the present). This—the **Out of Africa Hypothesis**—states that a single stock emerged from Africa 80,000-100,000 years ago and began a migration to the east in search of food. Other groups had left Africa before, but they were not *Homo sapiens*, but *Homo erectus*. In past scholarship it had been suggested that the phenotypic differences among humans of hair, skin, eyes, etc. were due to the development of independent regional forms of Homo descending into distinct subspecies found in geographically distinct places today. This view has been termed **Regional Polygenesis** and opposes the monogenetic view of the Out-of-African Hypothesis. Y-chromosome evidence, however, has tipped the scales in favor of monogenesis dramatically.

While there is strong genetic support for the monogenesis of the Tai and brethren peoples, there is another important piece of evidence buttressing the Africa Source Hypothesis. The fossil record in East Asia is quite unlike that found in Europe where rich evidence attests the settlement and development of Homo erectus in the form of *Homo neanderthalensis*. These "cavemen" preceded *Homo sapiens* in settling Europe and persisted temporally and geographically overlapping the habitat of Homo sapiens, right up to about 25,000 BP, when all trace of the Neanderthals disappeared. In Asia the situation was very different; Hominid fossil remains were found prior to 100,000 BP, but ceased to exist for the period 100,000 to 40,000 BP, suggesting that Homo erectus as a species succumbed in the Ice Age when the fossil evidence shows a hiatus, (Higham 2001: 3-5, but also see, www.ankhoaagency.com/prehistory%20of%20mankind.htm, for the polygenesis view in the paragraphs called "Remote ancestors of the Chinese people"). The subsequent finds after the Glacial Maximum 25,000 BP are ascribable to Homo sapiens.

We know of the exodus of our species because there was (1) random genetic mutation followed by (2) selective forces and random drift effects that determined a new viable DNA coding of a gene that then became fixed in the population.[1] Thus, in this case, a mutation, analogous perhaps to blood type differences, resulted in the M168 haplotype of the Y-chromosome of males

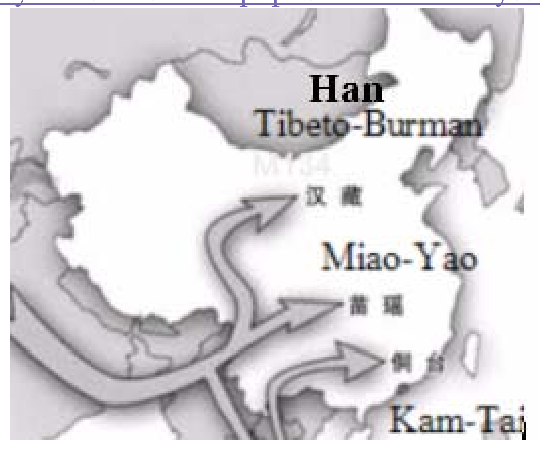
occurred in one group of African Homo sapiens. It was men carrying this mutation who left for the eastern shores of the Red Sea 80 millennia ago. Collections of such haplotypes, called haplogroups or single-nucleotide polymorphic (SNP) markers, can be studied in populations today by gathering genetic sampling of population groups and determining their percentages of specific haplogroups. Then, this Y-chromosome data can be used to analyze the frequency distribution of the markers across a geographic region and to generate contour maps, which then allow us to know the pathway and chronology of their migration. Haplogroups (for the Y-chromosomes) are given names that start with letters from A through R followed by numbers for finer subdivisions. The haplogroup called M168 is of special significance, since the Y-chromosome of every male outside Africa possesses this SNP marker.[2] Some 35,000 years later, Haplogroup F (M89) appeared in Africa or perhaps the Middle East. Many stayed there but others moved further to the east in search of game. This group is of significance to us, as it is believed that they represent a "second-wave" of expansion out of Africa. Therefore, a descendant group of those marked with the M89 SNP carry the M9 marker, which appeared about 35,000 years BP in a man in Iran. This haplotype is found today in all Asians. A further descendent of the M9 haplotype is M175, which is exclusively found in males in Asia; the man that carried this genetic marker was born about 30,000 years BP. He went with a group to East Asia where they were prevented from moving further by high mountains and still frigid temperatures. Some of his descendents remained in SE Asia and developed into the aboriginal populations found there still, e.g. the Austro-Asiatic populations, intermingling with the already-present "Negritos" of Malaysia, the Andamans, and the Philippines, who had arrived with the "first-wave" of Africans to settle in Asia, perhaps 80 or more thousand years ago, cf. Leroi (2005). But in time, the M175 bearing humans moved east and north. Somewhere near the Yunnan/Myanmar border there was a division into two subgroups (a) one group combined the 华夏族 *Huaxia*, the name used in the Zhou Dynasty for the people later called 汉 the Han or 中国人 the "ethnic" Chinese along with the 藏缅语族 Tibeto-Burmans, continued north and (b) the other was the 苗瑶族 *Miao-Yao* peoples, who later veered off when the two reached the Yangzi River basin.[3] Both groups had the characteristic M122 mutation. Some of those who arrived in Yunnan underwent a change, perhaps even before the groups who would carry the M122, moved out; these people, unlike those moving north, became the carriers of the M119 SNP marker. Returning, for the moment to those with the M122 fingerprint, the Miao-Yao were first to split off from this group, while the remainder continued further north to the source of the Yellow River, where they also divided, one group—the Tibeto-Burmans—remained there, whereas the Huaxia followed the course of the Yellow River downstream to Henan and Shaanxi Provinces.

Those people who had not turned north and whose Y-chromosome data possessed the M119 marker, moved south into northern Thailand, Laos and Vietnam and looped north crossing the Red River basin into territory north and south of the Sino-Vietnamese frontier and followed the sea coast up to the mouth of the Yangzi River near Shanghai. Those males who possessed the M119 SNP marker would later be identified by Chinese historians as the groups known as the 百越*Bai Yue*, who extended from Shanghai to the Sino-Vietnam border area in Yunnan Province. These peoples undoubtedly spoke different languages from place to place. Their descendents, the carriers of the M119 haplotypes included all the Tai, Kam-Sui, Kra, and Hlai people still found along the Vietnam-China border areas as well as those in Thailand, Laos, Myanmar, Vietnam, and some of the Austronesian aboriginal peoples of Taiwan, e.g. the Amis, cf. http://web.wenxuecity.com/BBSView.php?SubID=memory&MsgID=56818.

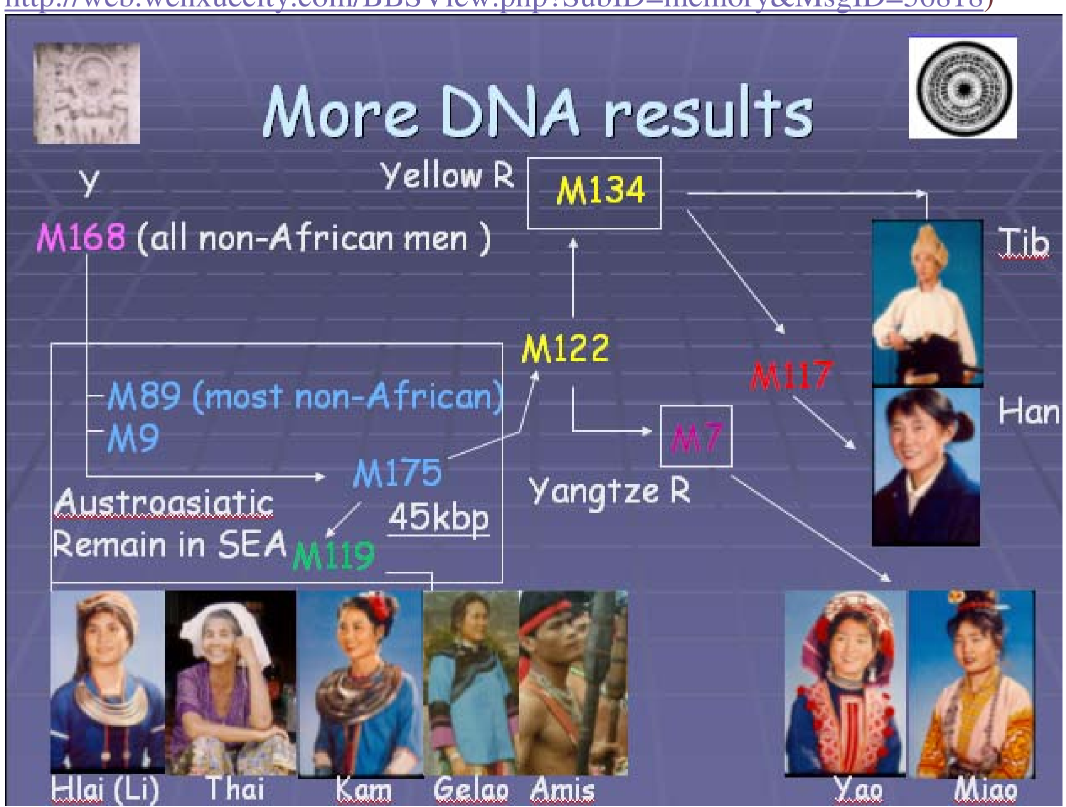
Summarizing, the Y-chromosome evidence suggests that, as a results of a different migration history, the more diverse peoples in the far south of China today have a very different genetic history from the more homogeneous people groups of north China.[4] Those near Shanghai, who were called the老越 Lao Yue, were absorbed in the 4th c. BC by Huaxia /Miao-Yao immigrants moving into the area. Those Huaxia people who at a later date came to the south mixed with the southern populations, as the genetic material of their descendents shows. This result is confirmation of historical accounts that say the Huaxia, and T-B peoples of the north moved southeast and southwest respectively, the former into Bai Yue territory, perhaps after mixing earlier with some with the Miao-Yao populations of Hubei/Hunan, cf. Wen, B. et al. (2004).

A summary of these peregrinations of the Bai Yue and the genetic markers of the Tai, kindred, and geographically adjacent precursors, as is seen in Figure 1a, 1b, and 1c:

a. from http://web.wenxuecity.com/BBSView.php?SubID=memory&MsgID=56818



b. redrawn from http://web.wenxuecity.com/BBSView.php?SubID=memory&MsgID=56818)



c. from Shi et al (2005)

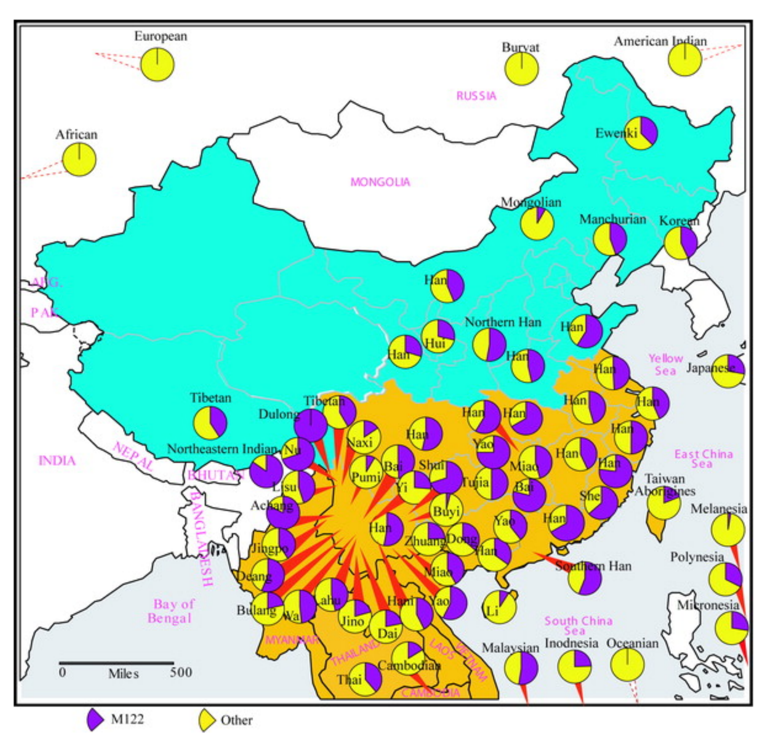


Figure 1: a) shows the pathway of migration from the south during the peopling of East Asia and the three strains of migration. b) tracks the genetic and temporal landmarks on this migration route (kbp=kiloyears before the present). c) map shows the percentage of persons demonstrating the M122 genetic marker, which would reflect a biogenetic heritage of those that migrated north from SE Asia; notice the significant yellow in b) among the descendants of the Bai Yue Zhuang, Dong, Buyi, Li, Dai, Thai and, for that matter, among the descendants of the Tibeto-Burman Yi, Pumi, Jino, etc. (cf also http://www.republicanchina.org/Vietnamese.html)

We close this section with other generalizations about the biogenesis of neighboring groups to the Bai Yue.

1. On the basis of Miao-Yao mitochondrial or mtDNA studies of 573 unrelated persons in 17 communities (4 Miao and 13 Yao types)—it is generally believed that these DNA mutations reflect the maternal lineage of speakers—a connection of the Miao-Yao genetic markers to southern populations is five times as strong as to northern populations, cf. Bo et al. (2005). The Miao-Yao are thought to be linked to Neolithic societies including the Daxi Culture (5,300–6,400 YBP) and the Qujialing Culture (4,600–5,000 YBP), who settled along the middle reaches of the Yangzi River in southern China, cf. Fei (1999). The B5a mtDNA haplotype marker has been dated to 6,000 ± 2,000 years BP. The D4 mtDNA haplotype is widely shared among Miao-

Yao groups, cf. Bo et al (2005). Mostly the M-Y groups show much closer affinities with SE Asian ethnicities, except for the M-Y groups of Hunan Province, which have more northern influences, as this is an area of mixing with Han people.

2. Yao et al (2002) have found that the Dai (of Yunnan Province China), the Zhuang of (Guangxi), and the Thai were especially close in regard to mtDNA markers.

These additional points support the themes presented in section 2 above that the East Asian populations arose from African stocks and they settled in the inland areas after the last Ice Age in three distinct movements: (a) the northern thrust settled the Yellow River and its source on the Tibetan-Qinghai Plateau and developed into the Tibeto-Burman and Huaxia (Han) peoples; (b) the middle branch expanded into the Yangzi Basin, where their offspring became the Miao-Yao people groups, later mixing to some degree with the Han, and (c) the most diverse groups first went south and then north into the maritime and Sino-Vietnam border areas to became the mosaic-like heterogeneity of the Bai Yue 'Hundred Yue' (cf. Section 4), later developing into the Zhuang, Thai, Lao, Kam-Sui, Hlai, and Kra people, as possibly also some of the aboriginals of Taiwan.

3. Ethno- and Linguo-genesis among the Tai et al.

The biogenetic and migration accounts of the distant past just described in Section 2 connect up to and augment extraordinarily well early historical reports about the cultures and languages of southern people groups reported by the early Huaxia, who had developed a written language about three to four thousand years after their arrival on the banks of the Huang He (Yellow River). In fact, writing and record keeping became a long term fixation among them even before the founding of a Han state in 221 BC. Traditionally, 甲骨文 the Jiaguwen 'tortoise shell oracle bone script' of the Shang Dynasty (1766-1122 BC) has been accepted as one of three clear examples of the independent invention of writing. Nonetheless, there are now new discoveries in this same area of Henan Province at 賈湖 Jiahu, where 24 Neolithic excavated grave sites contained tortoise shells with 11 decipherable characters on them. Radiocarbon dating fixed the age of the pieces at 6600-6200 BC, http://news.bbc.co.uk/1/hi/sci/tech/2956925.stm/. If these new data survive further scrutiny, then the Han Chinese will have to be accounted the first people to reduce the spoken language to written form.

3.1. People groups during the Shang (1766-1122 BC), Zhou (1122-722 BC) Spring and Autumn (722-481 BC), and Warring States Periods (433-221 BC) in Chinese records.

In the Shang Dynasty the Chinese called the non-Huaxia people groups of the northwest 羌 Qiang and even recorded this name in the early Jiaguwen script. They are today a nomadic pastoral Tibeto-Burman people living in northern

Sichuan Province, thus the character 羌 is composed of 人 (person) and 羊 (sheep). It is likely that their forbearers had accompanied the Huaxia people on their entry into northern China territory, cf. section 2. Gradually, names for other ethnicities emerged. The Miao-Yao groups, who settled the middle reaches of the Yangzi, were called *Nan Man* 南蛮, whereas the most southern branch of the three groups of pioneers were referred to as the *Bai Yue* 百越 and the focus of this paper. Finally, the *Bai-Pu* 百僕 was the name given to the Austro-Asiatic (Mon-Khmer) minorities on the extreme SW fringes of Chinese territory, including groups such as the Blang, Wa, De'ang and many, many more in SE Asia. In time Han historians, were able to get a clearer view of the Bai Yue, which they called:

(a) 古越Gu Yue A feudal state in the Spring and Autumn period; conquered by the楚 Chǔ (perhaps a mixed Huaxia and Miao-Yao state) in 333 BC. with Capital at 桂祺 Guiqi in Jiangxi Province. The populace of this area counts as Han today.

(b)闽越 Minyue 475-221 BC today's Fujian Province; It, too, is thought to have been multi-ethnic. Indeed, Fujian Province is regarded as having a unique culture within the Han spectrum. Perhaps this unorthodoxy is rooted in a culture with a strong admixture of Bai Yue and a history and language separate in contrast to the remainder of the Han方言*Fangyan* or local speech forms.

(c) 西瓯 Xi'ou is the name of an ancient kingdom situated along the drainage of the Xijiang (West River), centered on Wuzhou City on the border between Guangxi and Guangdong Provinces. This group seems to overlap geographically and culturally with the contemporary Northern Zhuang, except for some of the NW part of Guangxi. The Xi'ou were the first Yue group to experience unwanted contact with the Han legions, even though many Yue had served as mercenaries in military service of the powers of the Warring States.

(d) Successors of the 骆越 Luoyue or Lạc Việt of SW Guangxi are located south and west of Nanning, the Guangxi capital city) and in the Red River Basin of Viet Nam including Hanoi; their precursors lived in dongs or villages surrounded by mountains. Today this is the homeland of the Southern Zhuang, Nùng, and Tày, a collection of Central Tai people and language groups dwelling along the Sino-Vietnam border. It is to be noted, however, that the name of the Vietnam Kingdom of 瓯骆 Âu Lạc conquored by the Han general 赵佗 Zhao Tuo in 207 BC suggests that the Xi'ou and Luo Yue were closely related or (partially) combined polities.

(e)狸 Hlai, later called 黎, retreated to Hainan island off the Guangxi coast after the Tang Dynasty.

(f)獠 Liao recently called *Kra* in Ostapirat (2000) of W. Guizhou, SW Yunnan, and Viet Nam. There are seven groups known among the Kra: Gelao, Lachi, La Ha, Paha, Buyang, Nùng Ven, and Qabiao.

These people groups came increasingly in contact with the Han people as the northern people moved from the Yellow River further south, cf. Figure 2 below. Moreover, there is other evidence for cultural contact between northerners and southerners, as in the Spring and Autumn Period and then especially in the Warring States Period mercenary soldiers from among the Bai Yue were recruited by various ethnicities to fight in the Central Plains area south of the Yangzi River basin. From these encounters the Bai Yue learned of and acquired Han weaponry, battle tactics, and writing system. The evidence of the influence of northern populations is found in their grave goods, which in this time began to exhibit many more weapons of the Central Plains area, which were quite unlike the weaponry of the Bai Yue. Since the northerners generally regarded themselves as culturally more advanced, the south-to-north influence was considerably more limited.

3.2. Customs and practices of the Bai Yue.

Northern influence south of the Yangzi accelerated during the 500 year period 722-221 BC, allowing more and more information about the cultures of the South to be recorded in chronicles, gazetteers, and documents, though *interpretatio sinorum* must always considered in these accounts. The northern peoples were constantly impressed at the diversity of the people-, cultural-, and language-groups they encountered in the South, cf. Barlow http://mcel.pacificu.edu/as/resources/zhuang/zhuang2.htm. An increasing number of archeological data now provide artefactual evidence for a richer perspective on some issues of the Bai Yue social system, clan organization, native religion, handicrafts, diet, customs, and practices. In 2002 one site near Baise (located 320 km west-northwest of the Guangxi capital in Nanning, territory on the border between the Luo Yue and Xi'ou homelands) was apparently used as a large-scale factory for stone implements for 10,000 years, attesting to a thriving if primitive use of Neolithic stone tools. Another site in the nearby Tianyang Ganzhuang Mountains exhibited symbols of lightning and frogs, confirming shamanistic worship of weather deities and amphibians cf. below. There was also evidence indicating that about 5000 BP the Zhuang precursor people groups were transitioning from hunter-gather societies to agrarian ones. In ancient songs the ancestors of the Zhuang venerated Buluotuo (Pauloktao) and his wife Muliujia, by singing and burning incense. Some of the special features of the Bai Yue culture found their way into songs, chronicles, and travel books in this period. Without trying to be comprehensive,

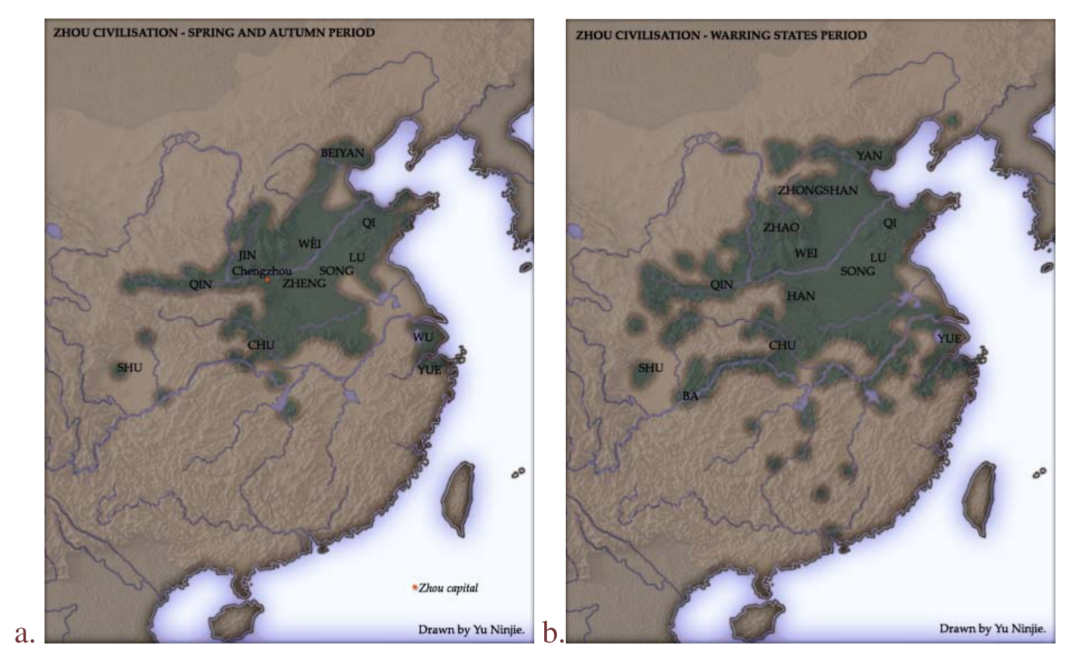


Figure 2: (a) Spring and Autumn Period 722-481 BC and (b) Warring States Period 5th c-221 BC. Note the spread of the northern people into the south

Bai Yue cultural features as exhibited in physical artifacts and reports in ancient document confirm the following customs and practices:

(a) Ganlan houses 干栏 on stilts with villages in dongs 洞 or basins within a circle of mountains, where the larger clan dwelled (quite unlike Han family units).
(b) Diet of clams and amphibians—giant salamander 娃娃鱼, nose drinking
(c) Removal of teeth; gold teeth; lacquered teeth
(d) Couvade—the father having sympathetic pregnancy symptoms
(e) Ritual bronze castings, especially drums
(f) Divining the future with bird bones
(g) Totemic worship of birds, reptiles and amphibians (especially frogs, as seen on bronze drums)
(h) Cliff burial and seated burial
(i) Boats and especially riverine warfare techniques
(j) Geometric design on pottery. Highly developed brocade weaving
(k) Short hair and tattoos against the Water Dragon
(l) Luo Yue cliff paintings celebrating shamanistic religious rites
(m) Singing in ritual worship, in greeting of guests, in working, and in reciting history

(n) Bai Yue clans were probably ambi-lineal or reflecting heritage on both sides, perhaps like the Spanish, Barlow, http://mcel.pacificu.edu/as/resources/zhuang/zhuang2.htm

(o) Bai Yue from early times were training to serve in the military of others, often quitting hearth and home for long period leaving womenfolk in charge of defenses.

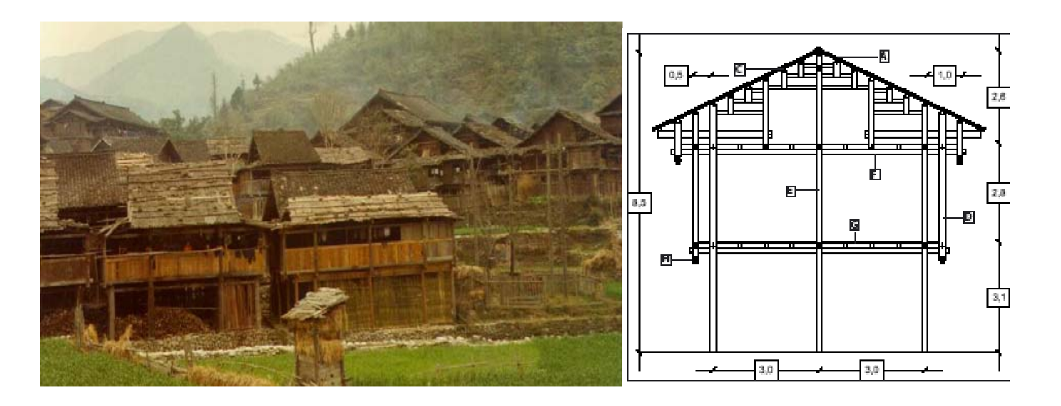


Figure 3: Congjiang Village in Guizhou Province, China (picture by JAE) showing Kam house construction (from the cocoon website cited below)

(a) The Ganlan house style is the construction favored by all Bai Yue and their descendents. As is stated in www.chinaculture.org/gb/en_artqa/2003-09/24/content_38949.htm that the Ganlan house is of wood or bamboo and is found today mainly in Yunnan, Guizhou, Guangdong and Guangxi, as well as in Vietnam, Myanmar, Laos and Thailand, wherever there are Kam-Tai peoples. It stands by itself and can be extended to several stories. Its main trusts are poles with cross members mortised together, cf. www.a.tu-berlin.de/cocoon/php/database%20contents/China_Guangxi_Longji_Ganlan%20Houses.pdf. The living areas are found on the second floor high above the ground, whereas the ground floor houses animal and equipment. This style is thought to have evolved in natural development from a practice of tree-dwelling among the Bai Yue, who once said they lived in caves. It overcame the shortcoming of ground dwellers who suffered from moisture, insects, snakes, and wild animal attacks.

The village was located in the mouth of a mountain redoubt or basin, or surrounded by a fence. The autonym Kam or *Dongzu*, nowadays rendered as 侗族 in Chinese, have similar meanings. *Kam* means ‘to be in an enclosed area or those that live in an enclosed area’ and this practice was rendered with the character 峒 ‘Mt. Kungtung (in Gansu Province),’ perhaps to suggest such an enclosed and

protect style of dwelling to a distant Emperor. Also the *lan* in *ganlan* ‘stilted house’ may hearken back to the proto-Tai *rɯan^{A} ’house’.

(i) Bai Yue and their descendents have always lived on rivers and have become masters of irrigation systems for wet paddy rice cultivation. Even today they construct weirs, bamboo aqueducts, Persian waterwheels, which extracts power from the flow to raise water, foot-powered pumps that move a train of bamboo buckets from the flooded side to the non-flooded side.

They were also expert in fighting from shallow draft boats, which would sweep down a river with warriors in feathered headdresses at the gunwales shooting poison arrows at a larger foot or mounted force caught on the bank.



Figure 4: Rubbing of an ancient boat with warriors in bird feather headdress and bird mascot in the bow

(l) The Bai Yue practiced shamanistic worship with rites that seemed to require large assemblies of people with raised arms and splayed legs as if dancing. Some rock paintings contain as many as one thousand figures.

(n) Family life and names were strikingly different from those of the Han. Barlow suggests that the common family name Huang, Chinese 黄, was homophonous in Zhuang with Wang 王 ‘king’ and was less a surname and more a title, cf. as an example the Vietnamese figure Hùng Vừơng (King of Hùng), the ruler of Văn Lạng.



Figure 5: Zhuang Rock Painting Ningming, Guangxi Province, China

The Nong were another large clan, who followed the dragon totem; they became famous for the revolt of Nong Zhigao. A man often went to live with/serve his wife's family, as is still common among the Black Tai, of Vietnam. Marriages were free choice for the partners. Individuals sealed the engagement by tossing a colorful ball through a hoop to be caught by the beloved. Finding a mate also involved choral singing with groups of young men and young women serenading each other in fixed groups of marriageable age. These fixed groups often competed in contests, cf. the Kam practice of *qiang huapao* 抢花炮 'stealing the flowery firecracker', a game resembling rugby in which an object is blown out of a bamboo tube canon and then wrestled back and forth until it is carried away or put into a goal.

(o) A brief history of the Bai Yue and the shared commonalities of the Thai and the Zhuang. The Bai Yue descendents, the Thai and the Zhuang, live far apart today and the groups themselves have little sense of commonality. But in times long ago they must have lived together. The two groups share very much common vocabulary: *khaau* 'rice', *lao* 'alcohol', *khwaai* 'buffalo', *mu* 'pig', and *ma* 'dog'; all these agrarian, domestic animal, local industrial terms are identical. What is different is that the Zhuang in the Warring States period began to seek military service with other people groups, the Huaxia (Han), Chu, and the Vietnamese during the Black Flag Army period, and the Republican Army against the Japanese at the Battle of Kunlun Pass and the Communist army. During the 侬智高 Nong Zhigao rebellion they fought the first battle of Kunlun Pass in 1035 AD in which the Chinese and allied Vietnamese forces defeated the armies of the Tai under Nong Zhigao, which Barlow regards as a truly decisive battle. The Thai, from their new home in SE Asia, were influenced by the Khmer and the Mon and

most importantly Buddhist India. The Zhuang remained in the Sino-sphere, whereas the Thai were taken up in the Indo-sphere.

Not only do we know that there were common origins between the Thai and the Zhuang but we can speculate about the time of separation. In his article Fan (1989) points out that Thai and Zhuang have the same exonym, *kɛɛu*^{A1} for Vietnamese (in Vietnamese called *giao*, meaning people). This word is taken from the name of a commandary or Chinese garrison called 交址 Jiaozhi, established in Vietnam about 112 BC, along with eight other commanderies: 南海 Nanhai, 郁林 Yulin (Guilin), 苍梧 Cangwu, 合浦 Hepu , 九真 Jiuzhen, 日南Rinan, 珠崖 Zhuya, and 儋耳 Dan'er (earlier it has been used to refer to varying places just south of the borders of the Chinese Empire, cf. http://www.chinahistoryforum.com/index.php?showtopic=5367&st=0&p=4733473&. But of all of them the Jiaozhi, situated in the Red River basin, was the most important and remained so for 200 years. This name as a representative of Vietnam and the Vietnamese people is not older than this time and it, therefore establishes the earliest date the Thai could have left for SE Asia. We also know that the northern rulers of the Bai Yue, once established, began giving names to the aboriginal inhabitants, especially during the Northern and Southern Dynasties, AD 420-589. This practice, however, did not happen to the Thai for they did not have the custom of giving family names until the reign of Rama VI, perhaps 100 years ago. Thus, the latest they could have left Chinese territory would have been at this time.

3.3. Language of the Bai Yue.

We have only one source of information about the language of the Bai Yue, the 越人歌 or *Yueren Ge* 'Song of the Yue Boatman'. It is found in the 善说 Shanshuo chapter of the Shuoyuan 说苑 or 'Garden of Persuasions', where it tells the story of Zhuang Xin 莊莘 (some say dating from 528 BC, based upon reports of when the personages involved in this story lived). Zhuang Xin was an official of the Chu Kingdom 楚国, who by chance glimpsed a prince 襄成 Xiang Cheng with retainers on a dock waiting to cross a river. He hurried to pay his respects and was rebuffed by the nobleman when he offered his hand. He washed and returned, saying that his Lordship must know the story of a certain Marquis E 鄂 who, some time before, was so warmly greeted by a boatman, with oars lofted singing a paean to honor his distinguished client.[5] The Marquis could not understand the Yue language so he requested that the song lyrics be translated into the Chu language and was so moved by the words he shook out his sleeves and covered the boatman in his cloak. Zhuang noted that he, as an official, was not as lowly in status as the boatman; and the Prince, was not as elevated in office as the Marquis, and thus they should not disrespect one another. The Prince chastened by these words apologized.

What is important is that the text of the Boatman's song in Yue language was recorded with Chinese characters. Scholars tried for centuries to interpret this text to discover information about the Yue language, but lacked a key to the language code. In the early 80's the Zhuang linguist Wei Qingwen using reconstructed Old Chinese for the characters discovered that the resulting vocabulary showed strong resemblance to modern Zhuang. Later, Zhengzhang Shangfang (1991) followed Wei's insight but used Thai script for comparison, since this orthography dates from the 13th century and preserves archaisms viz-à-viz the modern pronunciation. For example, Thai sound recorded with a "low" consonant initial, such as ค่ำ, literally [gam^C], was once thought to be pronounced voiced, but it today pronounced with voiceless aspiration, i.e. [k^ham^C]; similarly voiced affricates and fricatives correspond to voiceless or voiceless aspirated counterparts. They are given here with their historical (not modern) phonetic value.

1. 濫 兮 抃 草 濫
Old Chinese ɦgraams ɦee brons tshuuʔ glam
Thai script ค่ำ แฮ เพลิน เจอ, เจอะ ค่ำ
Phonetic value glam C ɦɛɛ A blɯɯn A tɕɯɯ(ʔ) glam C
English evening particle joyful meet evening
'Oh, the fine night, we meet in happiness tonight.'
2. 予 昌 桓 澤 予 昌 州
Old Chinese la thjaŋ < khjaŋ gaa drag la thjaŋ < khjaŋ tju < klju
Thai script เรา ช่าง กระ ดาก เรา ช่าง แจว
Phonetic value rau A djaaŋ B kraʔ A ʔdaak D rau A djaaŋ B tɕɛɛu A
English we apt to shy ashamed we, I be good at to row
'I am so shy, ah! I am good at rowing.
3. 州 湛 州 焉； 乎 秦 胥 胥
Old Chinese tju < klju khaamʔ tju < klju jen ƫiôg sa
Thai script แจว ข้าม แจว เยิ่นเย้อ ชื่น สะ สะ
Phonetic value tɕɛɛu A khaam C tɕɛɛu A jɯɯn B djɯɯn B saʔ A
English row cross row slowly particle joyful satisfy, pleased
'Rowing slowly across the river, ah! I am so pleased.'
4. 缦 予 乎 昭 澶 秦 踰
Old Chinese mooms la ɦaa tjau < kljau daans ʥin lo
Thai script มอม เรา ฮา เจ้า ท่าน ชิน รู้
Phonetic value mɔɔm C raa A ɦaa tɕau C daan B djin ruu C
English dirty, ragged I particle prince Y. Excellency acquainted know

‘Dirty though I am, ah! I made acquaintance of your highness the Prince’

5. 渗 愢 随 河 湖

Old Chinese srɯms djeʔ<gljeʔ sɦloi gaai gaa

Thai script ซุ่ม ใจ เรื่อย ใคร่ คะ

Phonetic value zum B tɕaɯ A rɯai B grai B gaʔ A

English hide heart forever yearn particle

‘Hidden forever in my heart, ah! is my adoration and longing.’

This song is organized according to the 楚词 Chuci form of classical poetry, which is not unlike the rhyme schemes of modern Tai folksong lyrics. That is, there is both end-rhyme and inter-rhyme. Zhengzhang notes that ‘evening, night, dark’ bears the C tone in Wuming Zhuang *xam*^{C2} and *ɣam* ^{C2} ‘night’. The item *raa* normally means ‘we inclusive’ but in some places, e.g. Tai Lue and White Tai ‘I’.

3.4. Linguistic descendants of the Bai Yue.

The Bai Yue language has developed into several stocks (cf. Li 1977): (a) **Tai**—classically divided into the Northern Tai (N. Zhuang 北壮族 and Bouyei 布依族), the Central Tai (S. Zhuang 南壮族, Tày, Nùng, and several smaller language along the Vietnam-China border), and SW Tai (Thai, Lao, Shan, Black and White Tai, Tai Do, Tai Mường, and many smaller groups; (b) **Kam-Sui**—Kam 侗族, Sui 水族, Mulam 仫佬族, Maonan 毛南族, Mak 莫族, Lakkia 拉珈, Grass Hmong 草苗族, etc.; (c) **Hlai** 黎族—population about 1 million found on Hainan in many varieties, and (d) **Kra**—Gelao, 拉基 Lachi, 普标 Qabiao, La Ha, Paha, Buyang, and Nùng Vên. In the maps below I have not given the locations of the Thai, Lao, or Shan groups, as these groups are better known.

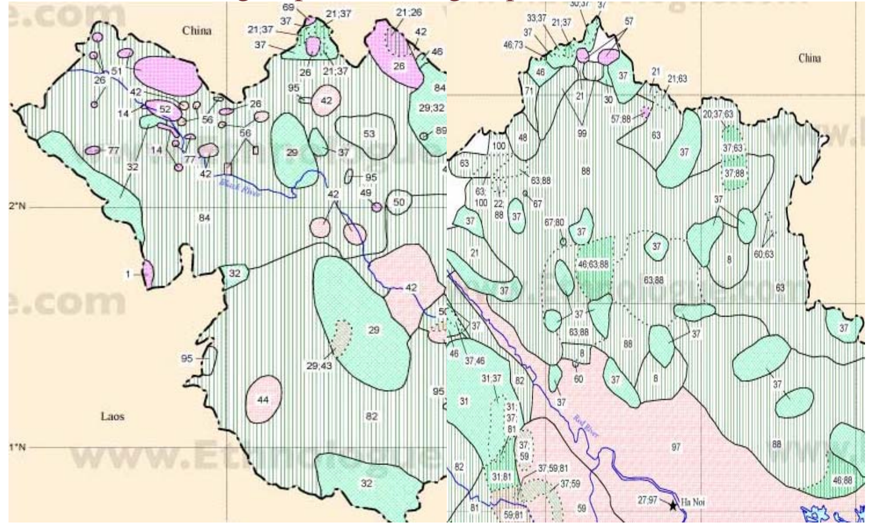


Figure 3: The Gelao, 仡佬族 Cơ Lao are found at locations 99, 73, and 22; La Chi or 拉其族 are found at 48 and 100; the Qabiao (Pu Peo, Pubiao 普标族) are found at 71, En (Nùng Ven) at location 20, and the Laha are found at 50 (from Ethnologue.com).

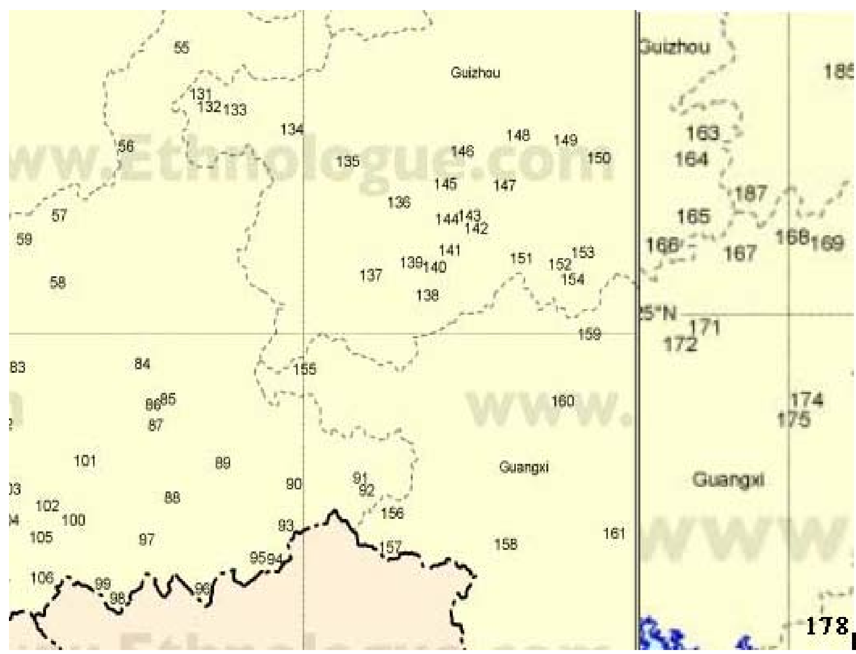


Figure 4: Paha/Yerong 156, Buyang 91, Maonan 159, S. Zhuang 158, Qabiao 93, N. Zhuang 161, Gelao 135, Lachi 94, S. Kam and Grass Hmong 163 and N. Kam 165, Lakkia 174, and the Hlai 178 located on Hainan Island off the Guangxi coast (from Ethnologue.com).

These four language groups—the Tai, Kam-Sui, Hlai, and Kra—share much in common in regard to sounds and grammatical structure. In most respects Tai and Kam-Sui are closer than either is to the other two. Phonologically, Tai and Kam-Sui have identical systems of five original tone categories, which later split into a number of new tone shapes depending upon features of the initial consonant. Hlai and Kra show less lexical agreement with Kam-Sui and Tai. All the languages have the coda consonants /-m –n –ŋ –p –t –k –w(u) –j(i)/ and Saek (Tai) and Laha Noong Lay (Kra) have /-l/, cf. Ostapirat (2000). Some Tai and some Kra languages also have glottal constriction as a part of the C tone category. Tai, SW Tai, and Kra languages. Lexically, Saek of Thailand and Laos, Sui of Guizhou Province, China, and Laha Noong Lay seem to preserved many archaic features not found elsewhere. These languages all have SVO order of the principle sentence constituents with the head of the construction typologically first. So, in noun phrases we find the orders Noun-Numeral-Classifier-Specifier (Determiner)

or Numeral-Classifier-Noun-Specifier (Determiner), the latter possibly having developed from contact with Chinese. The Kra languages are quite unique by having the negating element sentence final, as in Gelao *a*^{33} *tau*^{33} *i*^{42} *xa*^{33} *a*^{55} *mpau*^{33} *ə*^{42} POL-m. granddad-1SG-eat-meat-dog-NEG 'My maternal grandfather does not eat dog.' and, similarly, in Laha Noong Lay *in*$^{41?}$ *an*$^{44?}$ *si*$^{41?}$ *təu*$^{41?}$ I-have-comb-NEG 'I have no comb.' NEG-final syntax in the languages of East and Southeast Asia is quite rare.

4.0. Ecological development of the descendants of the Bai Yue.

The daughter languages of the Bai Yue have undergone an uneven development in regard to power. Some, such as the Zhuang, Bouyei, and Kam, have remained where the Bai Yue settled and have prospered. Some, such as the Thai, Lao, and Shan, have emigrated to Thailand, Laos, and Myanmar, and have prospered. Others have remained where their forbearers settled and have suffered the slings and arrows of outrageous fortune and are now facing extinction. These people groups provide a good example to test out some of the connection of the development of farming and language, as proposed by scholars such as Bellwood, Diamond, and Renfrew, cf. references.

In sections 2 and 3 above I have argued that the linguistic ecological situations differed. When the Huaxia populations were spreading along the Yellow River in north China, the result was **linguistic colonization**. That is to say, at the advent of the Huaxia precursors on the scene, the territory was effectively uninhabited; they carried their language into new territory. There was no resistance to immigration and the livelihood of constant hunting required relatively rapid movement. But, when the Huaxia peoples moved south into territory of the Bai Yue at the mouth of the Yangzi and later the into Chu lands in the Central Plains, the result was **linguistic divergence**. That is to say, the territory was populated already and the inhabitants were resistive to incursion. Ultimately, one language was able to absorb the other because of a strong gradient of technological or developmental superiority, perhaps made abundantly clear to the conquered through the exercise of military force. Critically, though, lexical items or grammatical features of the original Bai Yue or perhaps Chu language were preserved for a long time. For example, Zhengzhang (1990:18) states that 余 *yu* in the original meaning of 'earth, soil' in place names is a loan word from Kam-Tai parent language in the meaning of Kam *ja*^{5}, Sui *ʔɣa*^{5}, Mulam *ɣa*^{5} 'wet paddy'. And as we saw in the Yeren Ge 主 [tʂu] 'chief, superior' from Sui *ʔdwa* 'salt' meaning 'salt official'. Finally, consider the case of the Gelao, with 8340 speakers (Ethnologue.com). At time of Liang Wudi 梁武帝(* 464, † 549) it states that the Chinese officials in Guizhou had to "fight every year with the Lao [獠], for private and public interests." They appeared in Qin times in great numbers in Guizhou Province. Althought they once had a large population, today they are nearly extinct. When the Bouyei fought with them over land, there

were vast numbers slaughtered. De Beauclair (1986:398) says, “The Keh Lao of Kweichow, whose history for one and the same region can be traced for almost two thousand years, are therefore rightly called the aborigines of the province. They are found today either in an advanced state of assimilation as in Anshun, or where they have retreated into the barren and remote mountains, living in a state of poverty and degeneration.” The result was **linguistic replacement**. That is to say, after conquering a language group, the language of the conquered gets replaced by that of the conqueror (Renfrew 2000).

As a result of linguistic colonization, there develop **spread zones** in which a large territory is pervaded by one language. If there is linguistic divergence or linguistic replacement, then one can typically expect to see **mosaic zones** develop, in which there are many small groups ensuing from a situation of (former) hostility among the villages, as is seen par excellence in Papua New Guinea and the territory of the Bai Yue may also have been a mosaic zone to judge from the name ‘one hundred Yue’. Typically, mosaic zones do not go on to produce nation-states. Ergo, we can say that the expansion of Han Chinese resulted in a spread zone over much of the north and southwest of Chinese territory, which in the course of the intervening 2000 years or so has re-developed slowly into mosaic-like localities. In the southeast one finds linguistic divergence with sizable numbers of bilinguals. Thailand and Laos are to some degree re-developed spread zones, as well, with smaller populations retreating to highland areas. Gelao and other members of the Kra family have been undergoing linguistic replacement for some time and are now nearing extinction.

5.0. Conclusions.

In section 2 we sketch the biogenetic development of the northern and southern population groups in China and on the borderlands with Vietnam. In section 3 we looked at the ethno-/linguo-genetic development of the languages antecedent to Thai, Zhuang, Lao, Shan, and many smaller groups in terms of linguistic evidence and to a lesser degree in terms of archeological evidence. The important question to ask is to what degree can one expect the maps of biogenesis and those of ethno-/linguo-genesis to be isomorphic. First of all, mitochondrial and Y-chromosomal DNA is not recombinant; it preserves innovations from long ago. In this sense it is not like human language in society, as these are not transmitted directly in the genes, though the ability for language acquisition seems to be. It seems fair to assume that during the linguistic colonization of East and Southeast Asia by Homo sapiens that most language communities (language of societies) consisted of individuals with the same set of haplotype polymorphisms (language of the genes). Modern man was moving into unsettled land, as Homo erectus was no longer a competitor in East Asia. It seems unlikely that speakers in East Asia—unlike in Europe—had intense contact in the early days with speakers of other linguistic groups; distances among them were quite large. Moreover, as long as one lived in the hunter-gather state populations could move freely. But with increased hunting and lessened sources of fresh kills, the need to store food

for later arose and that brought new problems—vermin infestation, bacteria, sedentism, and eventually hunter-gatherer societies became agrarian ones. By the historical period the Bai Yue people had become geographically rooted along the SE and S coastal areas and contact began occurring.

As described above in 3.0, during the Spring and Autumn Period as well as the Warring States Period (1100-221 BC), Huaxia people groups from the north moved into the Central Plains area of the Yangzi basin. Moreover, as Barlow (1990ff) has described it, many Xi'ou and Lạc Việt (Tai precursors) were serving as mercenaries for armies fighting in the Central Plains area as well. A consequence of these contacts is widespread mixing of genes in the territories to the north and west of Bai Yue settlement, cf. the percentage of dark in the pie charts in Figure 1c for the southern Han, Yao, etc of the Central Plains area. One must note that subgrouping trees of haplogroup polymorphisms can be associated with approximate times of splitting of one group into two. With the determination of the Y-chromosome and mtDNA time lines, a phylogenetic history of the mixing of north and south genetic materials may some day become available. Though we must bear in mind that with the advent of agrarian societies, the social status of women tends to degrade and an awareness of property and a practice of defending it grows. That factor would argue that mixed heritage persons would be more inclined to speak the father's language, cf. Van Driem (to appear) and Bellwood (1995). Yet at the same time, mothers, then as now, are the primary caregivers for children and have more influence than fathers in the short run, until peers replace them as language choice models. Language has power and, if we are willing to call the encodings of genes "language", then it certainly has power over the past. But the power of the language of the genes is covert and must be unlocked with testing. Natural acquisition of spoken language is overt but rapidly changing and can give us information over some thousands of years. It remains to be seen just how helpful historical linguistics and population genetics will be to one another in our study of the past. Although the prospects of insights for some aspects of language history seem promising, ten millennia of genetic mixing must be transected before Darwin's Conjecture could be confirmed.

Acknowledgements

I wish herewith to acknowledge Jimmy G. Harris, John Hartmann, and Somsonge Burusphat for comments on drafts of this paper.

Notes

1. One common example of these mutations known to all is the various blood type polymorphisms in humans with distinct, regionally-determined distribution across the globe, e.g. there are dense clusters of individuals with B type blood in Central Asia but almost none in the Americas or Australia. South America is almost devoid of individuals with A blood type.

2. There is evidence from mitochondrial DNA to support the dating of the Paleolithic expansion (great increase in size of the human population) at about 60,000 years BP. Another important identifier of people of Asian origin is a length change of the 9-base pair located in the intergenic region between the COII gene and the Lysine tRNA gene.

In another vein, we know that Asian populations do not possess the M45 mutation, which occurs with high frequency in Caucasians. The Y-chromosome as well as the mitochrondial DNA do not undergo genetic recombination, which means that modern humans retain the history of their descent from ancient ancestral populations.

3. I will use the term *Huaxia*, the autonym of Zhou scholars, for events that occur before unification under Qin Shihuang in the 2nd century BC, and *Han* for all later events.

4. In fact, the Liujiang Man—a skull, partial body, and limbs found in 1958 near Liuzhou in Guangxi Province—has been recently re-dated to 130,000-70,000 BP (with the new thermal ionization mass spectrometer technique), the oldest fossil in SE Asia. This very early date for modern man must be considered a challenge to the Out-of-Africa Hypothesis, which I have assumed here.

5. That the Marquis was called 鄂 È, the ancient name for Hubei, suggests these events might have taken place in Hubei Province, just to the north of the Xi'ou grouping and a part of the Chu Kingdom.

References

Barlow, Jeffrey. (1990ff). The Zhuang: Ethnogenesis website http://mcel.pacificu.edu/as/resources/zhuang/zhuangintro.htm and following. An online publication with perhaps 1,000 pages of manuscript text about the Zhuang from the earliest times.

Beauclair, Inez de. (1986). The Keh Lao of Kweichow and their History According to the Chinese Records. In Ethnographic Studies: The collected Papers of Inez de Beauclair. Taipei: Southern Materials Center, Inc., 361-412.

Bellwood, Peter. (1996). Early agriculture and the dispersal of the southern Mongoloids, in *Prehistoric Mongoloid Dispersals*, edited by T. Akazawa & E. J. E. Szathmáry, pp. 289-302. Oxford University Press, Oxford.

Chu, JY, Huang, W, Kuang, SQ, Wang, JM, Xu, JJ, Chu, ZT, Yang, ZQ, Lin, KQ, Li, P, Wu, M, Geng, ZC, Tan, CC, Du, RF, Jin L (1998) "Genetic relationship of populations in China". *Proceedings of the National Academy of Sciences USA* 95: 11763-11768.

van Driem, George. (to appear). Austroasiatic phylogeny and the Austroasiatic homeland in light of recent population genetic studies. 14pp.

Fan Honggui. (1989a). 试谈壮族与泰族的分化， 形成时间 (A preliminary discussion about a division between the Zhuang and the Thai: its nature and it chronology. In Fan Honggui and Gu Youshi 壮族 论稿 A draft history of the Zhuang. Nanning: Guangxi Renmin Chubanshe.

Fan Honggui. (1989b). 我国壮族与越南岱族，侬族的古今关系 (The Zhuang of China and the Tày and Nùng of Vietnam and their ancient and modern relationship. In Fan Honggui and Gu Youshi 壮族 论稿 A draft history of the Zhuang. Nanning: Guangxi Renmin Chubanshe.

Fei Xiaotong 費孝通. (1999). The pattern of diversity in unity of the Chinese nation. Revised (2003) as *Zhonghua minzu duoyuan yiti geju* 中华民族多元一体格局（修订本） Beijing: Central University for Nationalities Press.

Gordon, Raymond G. Jr. (2005) *Ethnologue: Languages of the World Fifteenth Edition*. Dallas: SIL, International.

Higham, C. F. W. (2001). Prehistory, language and Human Biology: is there a consensus in East and Southeast Asia. In Li, Seielstad and Xiao (eds.) *Genetic, linguistic and archaeological perspectives on human diversity in Southeast Asia.* New Jersey, London, Singapore and Hong Kong: World Scientific, 3-16.

Leroi, Armand Marie. (2005). A family tree in every gene. *NY Times* March 14, 2005.

Olson, Steve. (2002). *Mapping Human history: Genes, Race, and our Common Origins.* Boston & New York: A Mariner Book Houghton Mifflin Company.

Ostapirat, Weera. (2000). Proto-Kra.. *Linguistics of the Tibeto-Burman Area.* 23.1.
Renfrew, Colin. (2000). At the Edge of Knowability: Towards a Prehistory of Languages. Cambridge Archeological Journal 10.7-34.
Sagart, Laurent, Roger Blench and Alicia Sanchez-Mazas. eds. (2005). *The Peopling of East Asia: Putting Together the Archaeology, Linguistics and Genetics.* London: Routledge Curzon.
Shi Hong, Dong Yong-li, Wen Bo, Xiao Chun-Jie, Peter A. Underhill, Shen Pei-dong, Ranajit Chakraborty, Li Jin, and Su Bing (2005**)**. Y-Chromosome Evidence of Southern Origin of the East Asian–Specific Haplogroup O3-M122. *American Journal of Human Genetics* 77:408–419.
Starostin, Sergei. Database query to Chinese characters. http://starling.rinet.ru/cgi-bin/query.cgi?basename=\data\china\bigchina&root=config&morpho=0 based on Starostin (1989).
Su Bing, Xiao Junhua, Peter Underhill, Ranjan Deka, Zhang Weiling, Joshua Akey, Huang Wei, Shen Di, Lu Daru, Luo Jingchun, Chu Jiayou, Jiazhen Tan, Peidong Shen, Ron Davis, Luca Cavalli-Sforza, Ranajit Chakraborty, Xiong Momiao, Du Ruofu, Peter Oefner, Zhu Chen and Li Jin. (1999). Human Y-Chromosome Evidence for a Northward Migration of Modern Humans into Eastern Asia during the Last Ice Age. *American Journal of Human Genetics* 65*:1718–1724.*
Wade, Nicolas, (2006). *Before the dawn: recovering the lost history of our ancestors.* New York et al: Penguin Group (USA).
Wei Qingwen 韦庆稳. (1982). 试论百越民 的语言 (Attempt at the language of the Baiyue).百越民族史论集. Beijing: Chinese Academy of Social Sciences Press.
Wells, Spenser. (2002). The journey of man: a genetic odyssey. Princeton & Oxford: Princeton University Press.
Wen Bo, Hui Li, Song Gao, Xianyun Mao, Yang Gao, Feng Li, Feng Zhang, Yungang He, Yongli Dong, Youjun Zhang, Wenju Huang, Jianzhong Jin, Chunjie Xiao, Daru Lu, Ranajit Chakraborty, Bing Su, Ranjan Deka, and Li Jin. (2005). Genetic Structure of Hmong-Mien Speaking Populations in East Asia as Revealed by mtDNA Lineages. *Molecular Biology and Evolution.* 22.3.725-34.
Wen Bo, Xuanhua Xie, Song Gao, Hui Li, Hong Shi, Xiufeng Song, Tingzhi Qian, Chunjie Xiao, Jianzhong Jin, Bing Su, Daru Lu, Ranajit Chakraborty, and Li Jin. (2004). Analyses of Genetic Structure of Tibeto-Burman Populations Reveals Sex-Biased Admixture in Southern Tibeto-Burmans. *American Journal of Human Genetics.* 74.856–865.
Yao, Yong-Gang, Nie Long, Harpending Henry, Fu Yun-Xin, Zhang Ya-Ping. (2002). Genetic relationship of Chinese ethnic populations revealed by mtDNA sequence diversity. *American Journal of Physical Anthropology* 118.63-76.

Zhengzhang Shangfang 郑张尚芳. (1990). 古吴越地名中的侗台语成分 Some Kam-Tai Words in Place names of the Ancient Wu and Yue States. 民族语言 Minzu Yuyan 6.16-8.
Zhengzhang Shangfang. (1991). Decipherment of Yue-Ren-Ge (Song of the Yue Boatman). *Cahiers de Linguistique Asie Orientale (Paris)* 20.159-68.